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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/530,747	10/23/2000	Christoph Kessler	4817/OR	5088

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EXAMINER	
SAKELARIS, SALLY A	
ART UNIT	**PAPER NUMBER**
1634	

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/530,747	KESSLER ET AL.	
	Examiner	Art Unit	
	Sally A Sakelaris	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/21/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is written in response to applicant's correspondence submitted 6/21/2004. Claim 1 has been amended, no claims have been canceled, and no claims have been added. Claims 1-9 are pending. Applicant's amendments and arguments have been thoroughly reviewed, but are not persuasive for the reasons that follow. Any rejections not reiterated in this action have been withdrawn as necessitated by applicant's amendments to the claims. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. **This action is non-FINAL.**

Response to Declaration

The Declaration under 37 CFR 1.132 filed June 21, 2004 is insufficient to overcome the rejection of the claims based upon 35 U.S.C. 103(a) as set forth in the last Office action because:

The declaration represents an opinion of the inventor, which is given some weight, but which is not sufficient to overcome the prima facie case under 35 U.S.C. 103(a). The declaration also does not include any data to support the conclusion that the "practioner in the art would expect the probe to interfere with efficient primer binding and extension and thus compromise the amplification reaction"(#5). Arguments #6 and #8 are not convincing as the examiner never relied upon these embodiments in her rejection. In the office action the examiner cited primer pairs 5 and 4, which do produce amplification fragments less than 100 nucleotides long, (see action pgs 3-4, 57 nucleotides in length). Furthermore, no data is presented to support their position that the "5' terminus of the probe, which is required for 5' nuclease degradation, is at a position that falls upstream of the amplicon region in all cases"(#7). For example, Livak et al. teaches exactly this in his figure 1. In order for his method to work, the polymerase must be

abutted to the 5' end of the probe. Thus, applicant's point is not understood as such a requirement is implicit in Livak's method that requires the polymerase to be immediately adjacent to the probe prior to the cleavage event. In addition applicant should note that in #5, the inventor states that "in the current invention, the probe binds to all of the nucleotides between the primer binding sites", but this limitation is not presently required by the claims. As such, while the inventor's opinion in taken into consideration, without any evidence to support his opinion or without his argued limitations in the claims, the declaration filed under 37 CFR 1.132, is not convincing to obviate the current rejection under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 2, 4, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birkenmeyer et al. (U.S. Patent No. 5,453,355 issued 9/26/1995) in view of Livak et al. (US Patent 5,538,848 issued 7/23/1996).

Regarding claim 1, Birkenmeyer et al. teach a method for the detection of a nucleic acid comprising the steps:

(a)- producing a plurality of amplificates of a section of the nucleic acid with two primers, one of which binds to a binding sequence A'(see Table 1 binding sequence of SEQ ID NO:4, 895-914), wherein said binding sequence A' is essentially complementary to a sequence A, located on the other strand of the nucleic acid, and the other primer binds to a second binding sequence C(see Table 1 binding sequence of SEQ ID NO:5, 951-934),which is located in the 3' direction from A and does not overlap A, in the presence of a probe having a binding sequence D(According to the reference's "primer set 5" of SEQ ID NOS:4 and 5 above(Col.4 lines 63-63), whose resulting binding sequence is at nt 915-933) wherein at least a portion of D(nt 915-933) is essentially complementary to all of sequence B(See Table 1's SEQ ID NO: 8 at nt 894-936 and also See Col.6 lines 33-40 internal probe description) wherein sequence B(SEQ ID NO:8 or other internal probe) consists of all the nucleotides between sequence A and binding sequence C(Birkenmeyer et al. US Patent 5,453,355). The reference further teaches that this internal probe be "labeled with 32P, biotin, or any other label capable of generating a signal"(col. 6 lines 40-41) for the detection of amplification products and further wherein the amplificate has a length of, using the example of the above primer pair 5, 57 nucleotides(895-951).

Regarding claim 2, Birkenmeyer et al. teach the above method wherein the binding

sequence D of the probe does not overlap one of the binding sequences of the primers. As asserted above, the reference in Col. 6 provides for an internal probe that binds to a sequence of "DNA lying *between* the oligonucleotide primers used for amplification" and further that "any DNA sequence found *between* each primer of a primer pair may be suitable for use" as a binding sequence for an internal probe.(Col. 6 lines 33-40). Furthermore, the reference teaches an embodiment of their invention in which the internal probe(SEQ ID NO:8, which spans bp 894-936 of the N. gonorrhoeae pil E gene (Table 1)) extends only 2 bp into the binding sequence "C"(primer SEQ ID NO:5), specifically as the 2 guanines in nt positions 935 and 936 of SEQ ID NO:8 would overlap the binding sequence of SEQ ID NO:5. Birkenmeyer et al. do not specifically exemplify as a single embodiment, a method in which the binding sequence of an internal probe(D or SEQ ID NO:8's 894-936) does not overlap one of the binding sequences of the primers(A/C or SEQ ID NO:4/5's). However, in view of the fact that Birkenmeyer et al teach an "internal oligonucleotide probe complementary to a region of DNA lying between the primers used for amplification" and that "any DNA sequence found between each primer of a primer pair may be suitable for use as an internal probe for the detection of amplification products"(Col. 6 lines 33-40) and further because the specification does not teach that an unexpected result would occur if these overlapping 2 bp(taught in Birkenmeyer et al reference) were absent, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have performed the amplification and subsequent binding of internal probe method of Birkenmeyer et al for two reasons; first was in order to have achieved the expected benefit expressly stated by Birkenmeyer et al, of providing a "rapid, sensitive, specific and reproducible method of detection of *Neisseria gonorrhoeae*" since "also of interest to the

background of the present invention is a technique useful in amplifying and detecting target DNAs known as the polymerase chain reaction"(Col. 2 lines 23-26 and 10-13). As discussed in MPEP 2144.06-2144.07, it is *prima facie* obvious to combine two reagents which are taught in the prior art to be useful for the same purpose and to use these reagents in combination based on their known functions. It is noted that Birkenmeyer et al teach in Table 1 specific primer pairs that are used to produce amplificates with a length less than 61 nucleotides and in Col. 6 the reference teaches internal probes located between the primers used for amplification. Both of these teachings of primer pairs and internal probes are taught by the reference in order to achieve the same purpose of obtaining a method of detecting DNA that is "rapid, sensitive, specific and reproducible"(Col. 2). Secondly, it would have been obvious to omit the "2bp" of overlap taught in the primer pair #5 example as determining the optimum conditions for performing a method step is well within the skill of the art/as optimization of conditions for performing a method step are well within the skill of the art. As discussed in MPEP2144.05(b), "(w)here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454,456, 105 USPQ 233,235 (CCPA 1955). The courts have stated that it would be obvious to omit an element when a function attributed to said element is not desired or required (see Ex parte Wu, 10 USPQ 2031).

Regarding claim 4, Birkenmeyer et al. teach amplificates which are 57, 51, 50 or 44 bp in length (Table 1; Fig. 2), therefore have a length of less than 61 nucleotides.

Regarding claim 9, Birkenmeyer et al. teach nucleotides complementary to A, G, C and T in the amplification reaction (col. 8, lines 63-65).

Birkenmeyer et al do not teach the method of claim 1 wherein the labeled probe consists of a fluorescence quencher as well as a fluorescent dye.

Livak et al.(US patent 5,538,848) teach a probe labeled with a reporter molecule (= fluorescent dye) and a quencher, the probe being used for monitoring of the progress of amplification reaction (Abstract; Figure 1; col. 3, lines 29-56; col. 5, lines 38-58).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have used the reporter-quencher labeled probe of Livak et al. in the detection method of Birkenmeyer et al. The motivation to do so, provided by Livak et al., would have been that real-time quantitation of nucleic acid amplification was achieved using such probe, and real-time monitoring of amplification prevented cross-contamination of samples, especially important in diagnostic applications (col. 1, lines 22-52; col. 3, lines 8-12).

Response to arguments:

Applicant's arguments filed 6/21/2004 have been fully considered but they are not persuasive. Applicant first argues that "Birkenmeyer does not teach concurrent probe hybridization and amplification", however the secondary reference Livak et al. does teach a real-time amplification reaction that employs a dual-labeled probe. Birkenmeyer was not depended on for this teaching, Livak et al. provides the teaching and the motivation to combine the two references on page 6 of the first action on the merits.

Applicant next argues that "Livak does not teach a probe that hybridizes to all of the nucleotides between the primer binding sites"(pg. 6). However, it first should be noted that the claims are not presently written to require this limitation(ie. from claim 1 "in the presence of a probe having a binding sequence D, wherein at least a portion of D is essentially complementary

to all of sequence B") and even if they did require this limitation, Birkenmeyer et al. teach in Col. 6 an internal probe that binds to a sequence of "DNA lying *between* the oligonucleotide primers used for amplification" and further that "any DNA sequence found *between* each primer of a primer pair may be suitable for use" as a binding sequence for an internal probe.(Col. 6 lines 33-40).

Applicant further argues that "the rejection provides no reasoning as to why one of skill would expect the modified reaction comprising the primers and probe taught by Birkenmeyer would work"(Pg. 6) and furthermore that a "reasonable expectation for success is lacking". In this case, the motivation comes from the Livak et al. reference especially in Fig. 1 where it is taught that the use of a non-overlapping probe between the two primers is able to be shown to work with the 5' nuclease degradation assay which in combination with Birkenmeyer's teaching of an internal probe that binds to a sequence of "DNA lying *between* the oligonucleotide primers used for amplification" provides an expectation of success for the methods in the absence of any sort of unexpected result taught by applicants.

Applicant's arguments drawn to the Dr. Kessler's opinion are responded to above as they are reiterations of Dr. Kessler's arguments made in the Declaration under 37 CFR 1.132.

Next, with regard to claim 2, while applicant states that "Birkenmeyer does not explicitly disclose probes that hybridize to the complete sequence between primer binding sites, but don't overlap into one or more of the primer binding sites" it is not acknowledged that Birkenmeyer does not teach this embodiment as in Col. 6 he clearly does; Birkenmeyer's teaching of an internal probe that binds to a sequence of "DNA lying *between* the oligonucleotide primers used for amplification". Applicant should note however that this is not a requirement of the presently

written claims, the probe is not required to bind to all of the sequence B, only "wherein at least a portion of D is essentially complementary to all of sequence B".

In conclusion, the claims as written do not recite all of the limitations that are argued by applicants. It is important to note that limitations in applicant's arguments, specification etc cannot be read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore however, even if these limitations are added, Birkenmeyer's Col. 6 teaching provides for the concept of a non-overlapping probe between to oligonucleotide primers and in combination with Livak et al, the invention is obvious to one of ordinary skill in the art at the time the invention was made.

2. Claims 3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birkenmeyer et al.) in view of Livak et al. (US Patent 5,538,848 issued 7/23/1996) and in further view of Greisen et al. (J. Clin. Microbiol., vol. 32, pp. 335-351, 1994).

The teachings of Birkenmeyer et al. in view of Livak et al are described above. Birkenmeyer et al. in view of Livak et al. do not teach amplification of a nucleic acid target with primers or probes which are not specific for the nucleic acid.

However, Greisen et al. teach amplification of bacteria causing meningitis using universal (= non-specific) primers and probes, with which a number of bacterial species found in CSF were amplified and detected. The primers were DG74, RW01 and RDR080 (Table 3). These primers amplified 18 species of bacteria found in CSF (page 343, first paragraph; Table 1). In addition, universal probes for different bacterial species were designed, with probe COR28 designed to detect N. meningitis serotypes and *N. gonorrhoeae* (page 343, sixth paragraph; Table 4).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have used the non-specific primers and probes of Greisen et al. in the method of Birkenmeyer et al.) in view of Livak et al. The motivation to do so, provided by Greisen et al., would have been that amplification with non-specific primers and detection with non-specific probes provided a very sensitive way of detecting pathogenic bacteria in CSF, as 10 copies of *E. coli* DNA, corresponding to three *E. coli* cells, were detected (page 349, fourth paragraph). As stated by Greisen et al., "... A clinical PCR assay based on these primers may have sufficient sensitivity to allow direct detection of bacteria in CSF without an intermediate culturing step..." (page 349, fourth paragraph), and "...The PCR primers and panel of probes described here can form the basis of a more rapid and sensitive means of detecting bacteria in clinical samples." (page 350, last paragraph).

Response to Arguments :

Applicant's arguments filed 6/21/2004 have been fully considered but they are not persuasive. While applicant's state that Livak in conjunction with Birkenmeyer and Greisen still "does not arrive at the claimed invention for the reasons described above" and the "teachings of Griesen do not cure this defect", considering the above response to applicant's arguments directed to the Birkenmeyer et al. in view of Livak et al. rejection, the rejection is maintained.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 5, 8, and 11-14 of copending Application No. 09/530,929 in view of Birkenmeyer et al.

Specifically, claims 1, 4, 5, 8, and 11-14 of application 09/530,929 recite a method for the detection of a nucleic acid comprising the steps:

(a)- producing a plurality of amplificates of a section of the nucleic acid with the aid of two primers, one of which binds to a binding sequence A', which is complementary to a sequence A of one strand of the nucleic acid and the other binds to a binding sequence which is located in the 3' direction from A and does not overlap A,

(b)- contacting the amplificates with a probe having a binding sequence D which binds either to a sequence B or to the complement thereof, wherein the sequence B is located between the sequences A and C, and

(c)- detecting the formation of a hybrid of the amplificate and probe,

wherein the sequence located between the sequences A and C contains no nucleotides or less than 3 nucleotides that do not belong to the sequence region E formed from the binding sequence D of the probe and the sequence of the amplificate bound thereto and the amplificates are shorter than 100 nucleotides. In addition, dependent claims 4, 8, and 11-14 are identical to

claims 3, 5-9 respectively of the present application. The method of claim 1 of 09/530,929 differs from that claims 1, 2, and 4 herein in that it fails to disclose the binding sequence D of the probe that does not overlap one of the binding sequences of the primers and that the total length of the amplificates formed with the aid of the primers have a length of less than 61 nucleotides. However, the portion of the conflicting application that supports the embodiment of the method concerning the use of a non-overlapping probe(Pg. 28, Fig. 3- I) and amplificate size(Pg. 20, lines5-8) both teach these two limitations that the claims lack.

Regarding claim 1, Birkenmeyer et al. (U.S. Patent No. 5,453,355 issued 9/26/1995) teach a method for the detection of a nucleic acid comprising the steps:

(a)- producing a plurality of amplificates of a section of the nucleic acid with two primers, one of which binds to a binding sequence A'(see Table 1 binding sequence of SEQ ID NO:4, 895-914), wherein said binding sequence A' is essentially complementary to a sequence A, located on the other strand of the nucleic acid, and the other primer binds to a second binding sequence C(see Table 1 binding sequence of SEQ ID NO:5, 951-934),which is located in the 3' direction from A and does not overlap A, in the presence of a probe having a binding sequence D(According to the reference's "primer set 5" of SEQ ID NOS:4 and 5 above(Col.4 lines 63-63), whose resulting binding sequence is at nt 915-933) wherein at least a portion of D(nt 915-933) is essentially complementary to all of sequence B(See Table 1's SEQ ID NO: 8 at nt 894-936 and also See Col.6 lines 33-40 internal probe description) wherein sequence B(SEQ ID NO:8 or other internal probe) consists of all the nucleotides between sequence A and binding sequence C(Birkenmeyer et al. US Patent 5,453,355). The reference further teaches that this internal probe be "labeled with 32P, biotin, or any other label capable of generating a signal"(col. 6 lines 40-41)

for the detection of amplification products and further wherein the amplificate has a length of, using the example of the above primer pair 5, 57 nucleotides(895-951).

Regarding claim 2, Birkenmeyer et al. teach the above method wherein the binding sequence D of the probe does not overlap one of the binding sequences of the primers. As asserted above, the reference in Col. 6 provides for an internal probe that binds to a sequence of "DNA lying *between* the oligonucleotide primers used for amplification" and further that "any DNA sequence found *between* each primer of a primer pair may be suitable for use" as a binding sequence for an internal probe.(Col. 6 lines 33-40). Furthermore, the reference teaches an embodiment of their invention in which the internal probe(SEQ ID NO:8, which spans bp 894-936 of the N. gonorrhoeae pil E gene (Table 1)) extends only 2 bp into the binding sequence "C"(primer SEQ ID NO:5), specifically as the 2 guanines in nt positions 935 and 936 of SEQ ID NO:8 would overlap the binding sequence of SEQ ID NO:5. Birkenmeyer et al. do not specifically exemplify as a single embodiment, a method in which the binding sequence of an internal probe(D or SEQ ID NO:8's 894-936) does not overlap one of the binding sequences of the primers(A/C or SEQ ID NO:4/5's). However, in view of the fact that Birkenmeyer et al teach an "internal oligonucleotide probe complementary to a region of DNA lying between the primers used for amplification" and that "any DNA sequence found between each primer of a primer pair may be suitable for use as an internal probe for the detection of amplification products"(Col. 6 lines 33-40) and further because the specification does not teach that an unexpected result would occur if these overlapping 2 bp(taught in Birkenmeyer et al reference) were absent, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have performed the amplification and subsequent binding of internal

probe method of Birkenmeyer et al for two reasons; first was in order to have achieved the expected benefit expressly stated by Birkenmeyer et al, of providing a "rapid, sensitive, specific and reproducible method of detection of *Neisseria gonorrhoeae*" since "also of interest to the background of the present invention is a technique useful in amplifying and detecting target DNAs known as the polymerase chain reaction"(Col. 2 lines 23-26 and 10-13). As discussed in MPEP 2144.06-2144.07, it is *prima facie* obvious to combine two reagents which are taught in the prior art to be useful for the same purpose and to use these reagents in combination based on their known functions. It is noted that Birkenmeyer et al teach in Table 1 specific primer pairs that are used to produce amplificates with a length less than 61 nucleotides and in Col. 6 the reference teaches internal probes located between the primers used for amplification. Both of these teachings of primer pairs and internal probes are taught by the reference in order to achieve the same purpose of obtaining a method of detecting DNA that is "rapid, sensitive, specific and reproducible"(Col. 2). Secondly, it would have been obvious to omit the "2bp" of overlap taught in the primer pair #5 example as determining the optimum conditions for performing a method step is well within the skill of the art/as optimization of conditions for performing a method step are well within the skill of the art. As discussed in MPEP2144.05(b), "(w)here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454,456, 105 USPQ 233,235 (CCPA 1955). The courts have stated that it would be obvious to omit an element when a function attributed to said element is not desired or required (see Ex parte Wu, 10 USPQ 2031).

Regarding claim 4, Birkenmeyer et al. teach amplificates which are 57, 51, 50 or 44 bp in length (Table 1; Fig. 2), therefore have a length of less than 61 nucleotides.

Therefore, it would have been obvious to modify the method of claim 1 of application 09/530,929 such that the binding sequence did not overlap the binding sequences of the primers and so that the amplificates have a length of less than 61 nucleotides. One having ordinary skill in the art would have been motivated to make such a modification to optimize the pcr amplification assay as per the teachings of Birkenmeyer et al. and the supporting portions of US application 09/530,929.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments:

See below in response to the ODP rejections.

4. Claims 1-9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 5, 8, and 11-14 of copending Application No. 09/530,746 in view of Birkenmeyer et al.

Specifically, claims 1, 4, 5, 8, and 11-14 of application 09/530,746 recite a method for the detection of a nucleic acid comprising the steps:

(a)- producing a plurality of amplificates of a section of the nucleic acid with the aid of two primers, one of which binds to a binding sequence A', which is complementary to a sequence A of one strand of the nucleic acid and the other binds to a binding sequence which is located in the 3' direction from A and does not overlap A,

(b)- contacting the amplificates with a probe having a binding sequence D which binds either to a sequence B or to the complement thereof, wherein the sequence B is located between the sequences A and C, and

(c)- detecting the formation of a hybrid of the amplificate and probe,

wherein the sequence located between the sequences A and C contains no nucleotides or less than 3 nucleotides that do not belong to the sequence region E formed from the binding sequence D of the probe and the sequence of the amplificate bound thereto and the amplificates are shorter than 100 nucleotides. In addition, dependent claims 4, 8, and 11-14 are identical to claims 3, 5-9 respectively of the present application. The method of claim 1 of 09/530,746 differs from that claims 1, 2, and 4 herein in that it fails to disclose the binding sequence D of the probe that does not overlap one of the binding sequences of the primers and that the total length of the amplificates formed with the aid of the primers have a length of less than 61 nucleotides. However, the portion of the conflicting application that supports the embodiment of the method concerning the use of a non-overlapping probe(Pg. 28, Fig. 3- I) and amplificate size(Pg. 20, lines 5-8) both teach these two limitations that the claims lack.
Birkenmeyer et al. teachings can be seen above and applied again to this rejection.

Therefore, it would have been obvious to modify the method of claim 1 of application 09/530746 such that the binding sequence did not overlap the binding sequences of the primers and so that the amplificates have a length of less than 61 nucleotides. One having ordinary skill in the art would have been motivated to make such a modification to optimize the pcr amplification assay as per the teachings of Birkenmeyer et al. and the supporting portions of US application 09/530,746.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments:

The applicants response to the 2 obviousness-type double patenting rejections(***09/530,929 and to 09/530746)*** is acknowledged and they are thanked for pointing out that examiner's unintentional use of 09/530,929 in the rejection of #4, whose body was clearly meant to depict the content of 09/530746, the correction has been made. The examiner is also assuming applicant's use of 09/530,736(pg. 10 of response) is meant to refer to application 09/530,746. While applicants acknowledge that they will gladly consider providing a terminal disclaimer, one was not presently provided. Since no terminal disclaimer was provided, the rejections are maintained over both pending applications.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sally A Sakelaris whose telephone number is 571-272-0748. The examiner can normally be reached on M-Fri, 9-6:30 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sally Sakelaris

9/10/2004

JEFFREY FREDMAN
PRIMARY EXAMINER